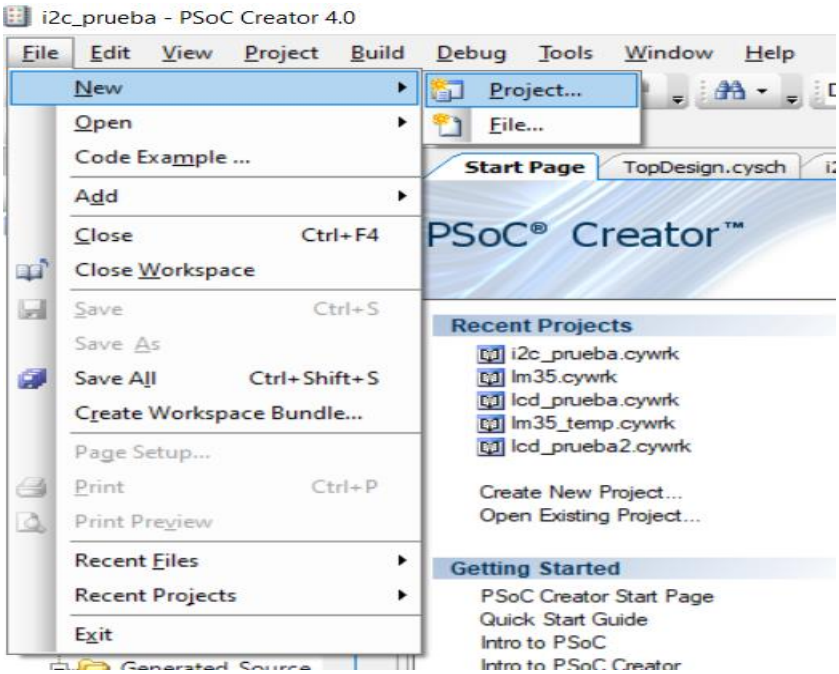
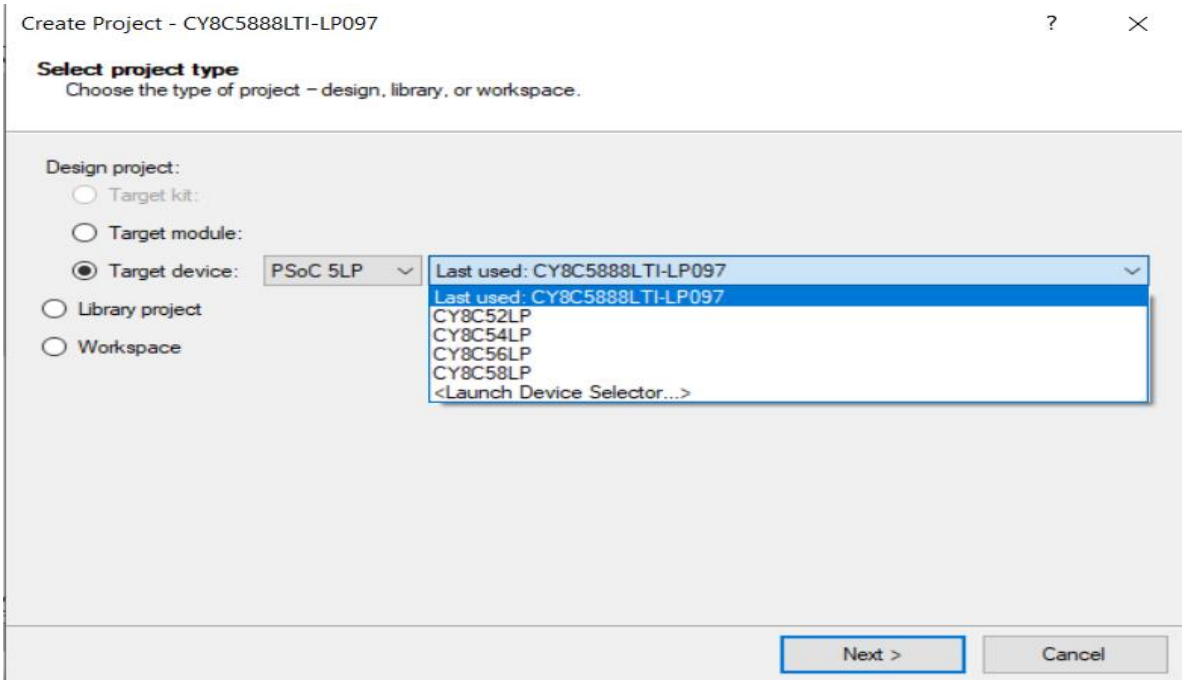
How made the project

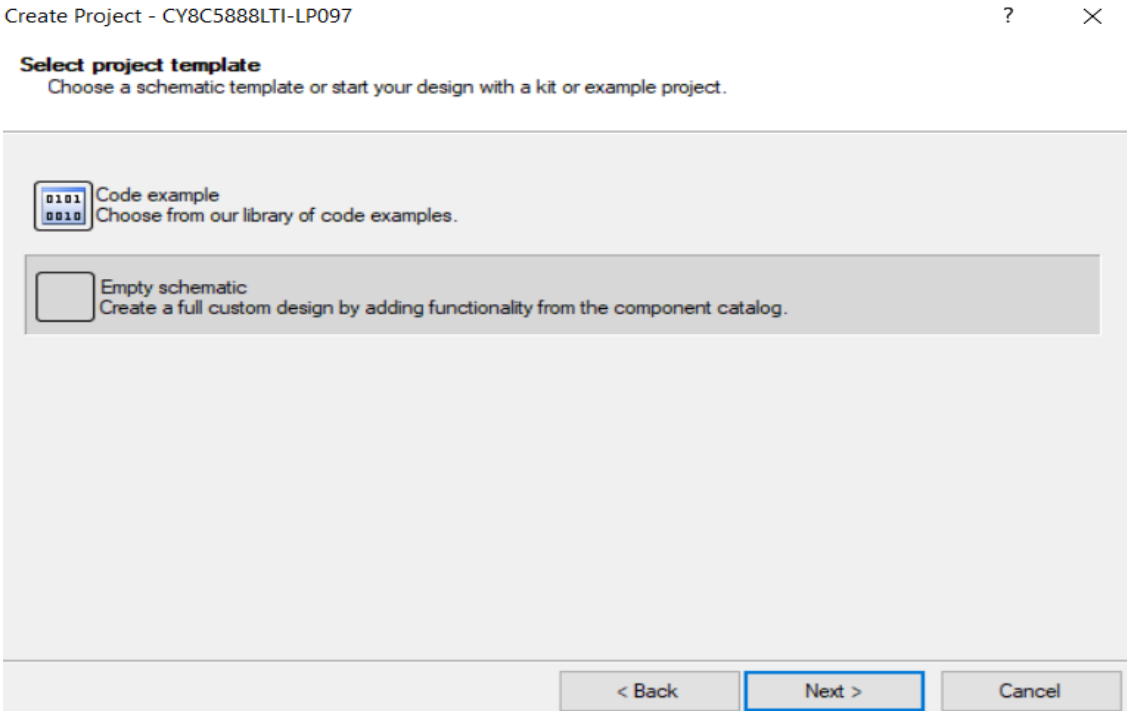
1) Open Psoc Creator and clik new proyect



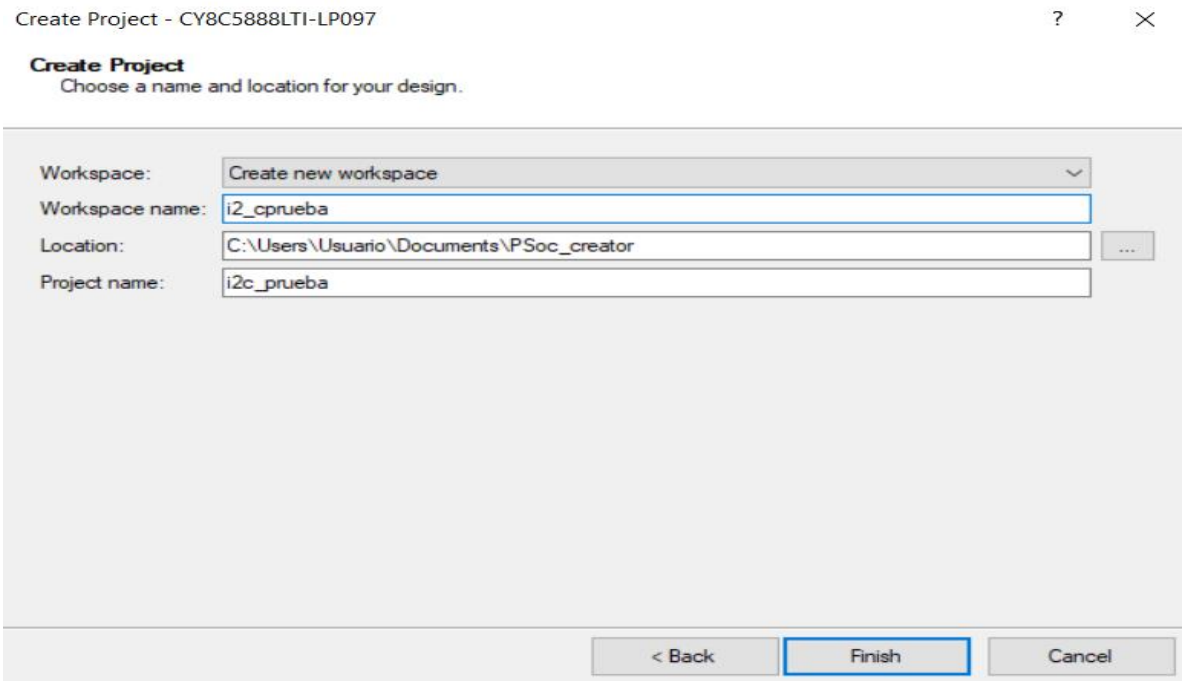
Mark the target device box and select the mcu



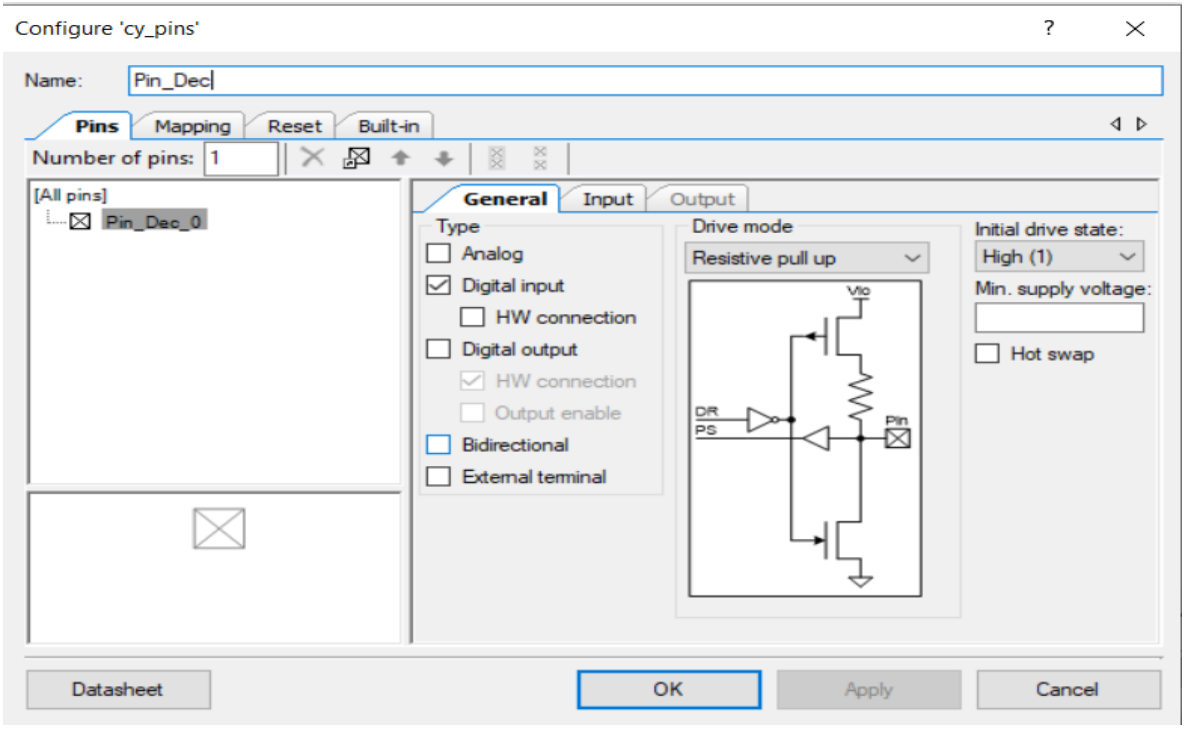
Next and select Empty schematic box

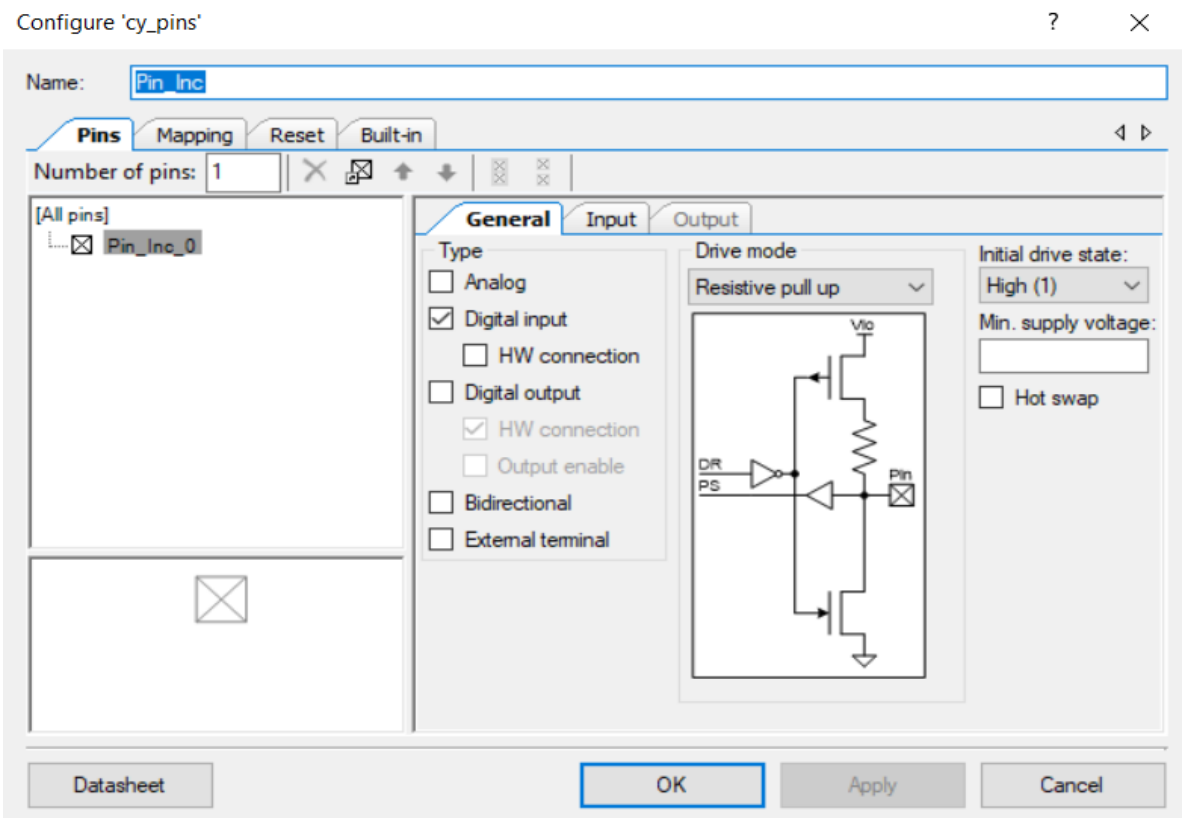


Give a name to your project and create a new workspace if wish you and save it in a new folder afther that finish

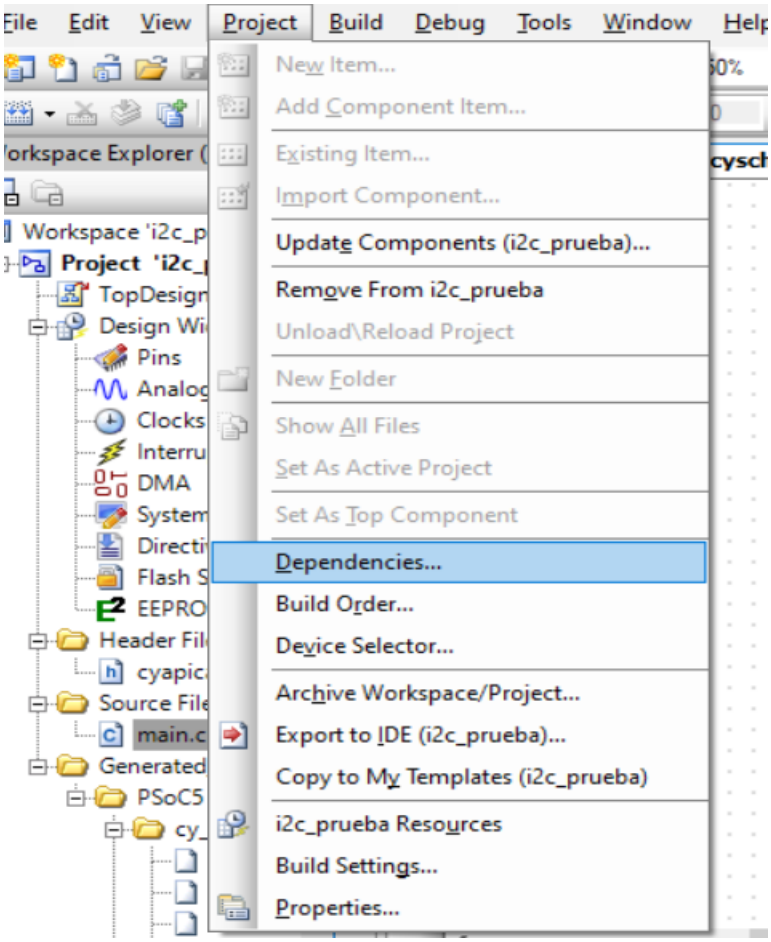


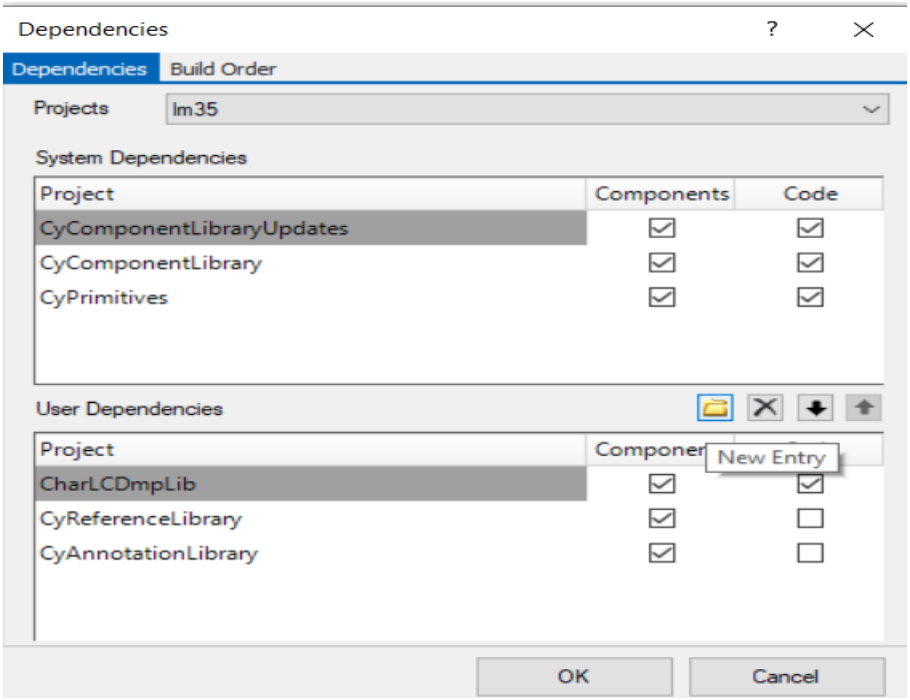
2) Configure Pull-up resistor for Pin_Inc(P12_2) and Pin_Dec(P12_3)

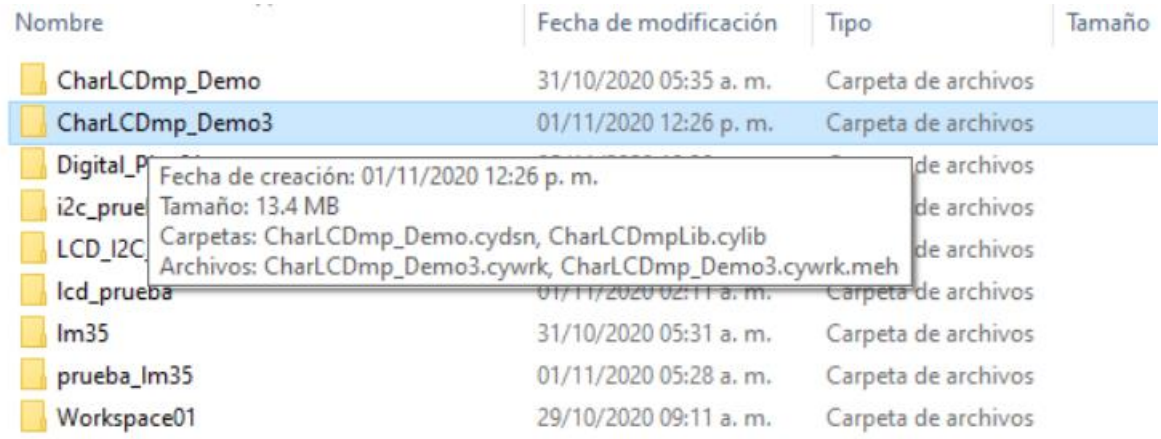


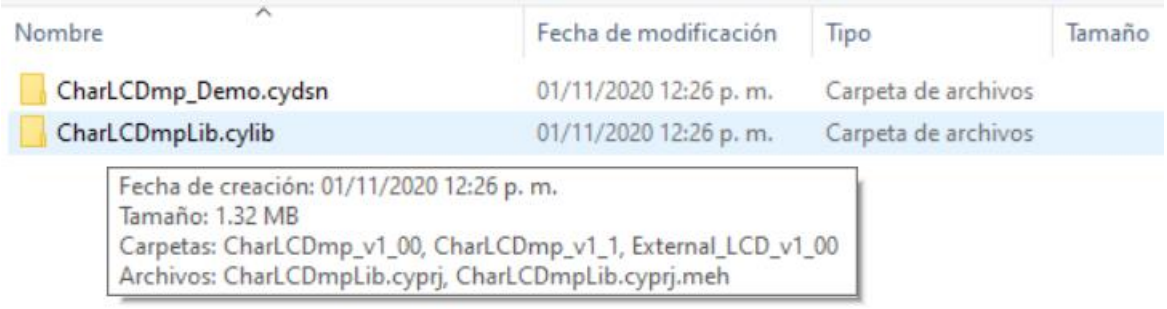


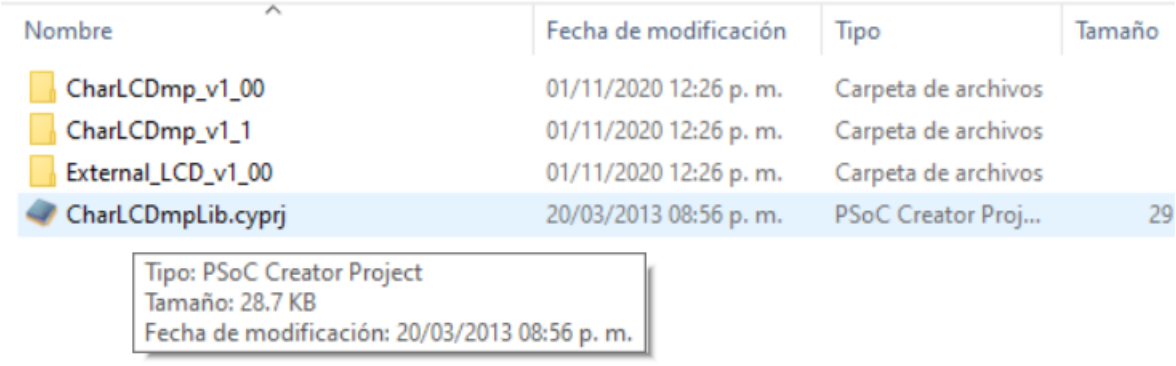
3) Import library for 2x16 lcd

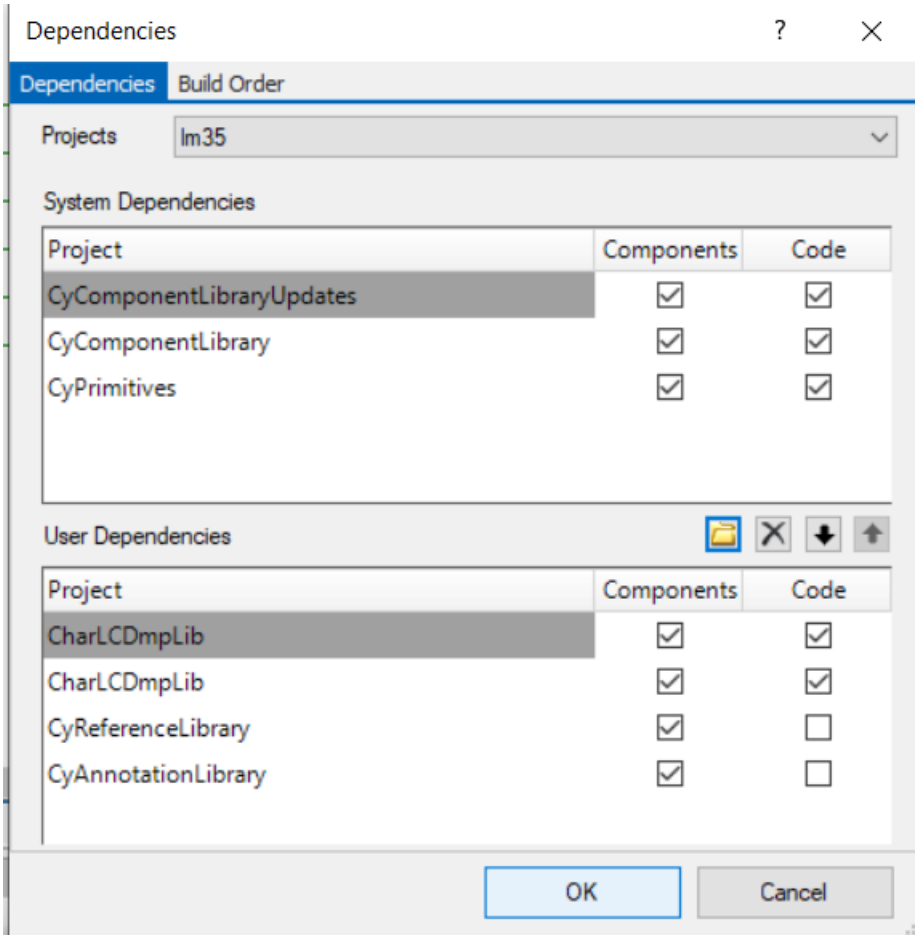


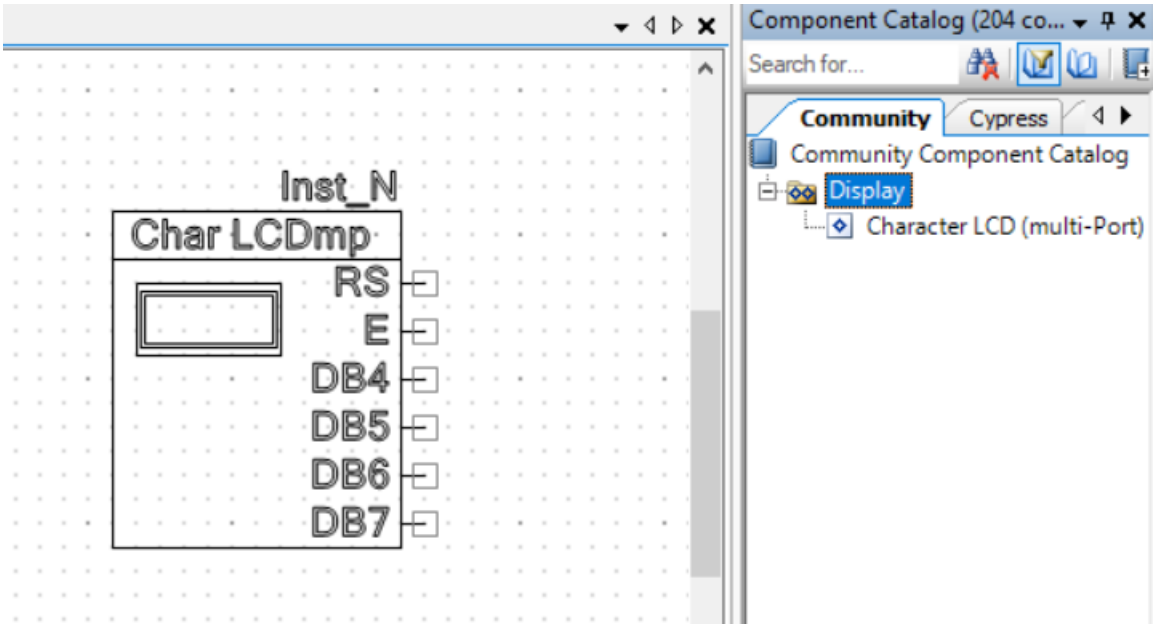



Nombre
Fecha de modificación
Tipo
Tamaño
CharLCDmp_Demo
31/10/2020 05:35 a. m.
Carpeta de archivos
CharLCDmp_Demo3
01/11/2020 12:26 p. m.
Carpeta de archivos
Fecha de creación: 01/11/2020 12:26 p. m.
Tamaño: 13.4 MB
Carpetas: CharLCDmp_Demo.cydsn, CharLCDmpLib.cylib
Archivos: CharLCDmp_Demo3.cywrk, CharLCDmp_Demo3.cywrk.meh
lm35
31/10/2020 05:31 a. m.
Carpeta de archivos
prueba_lm35
01/11/2020 05:28 a. m.
Carpeta de archivos
Workspace01
29/10/2020 09:11 a. m.
Carpeta de archivos

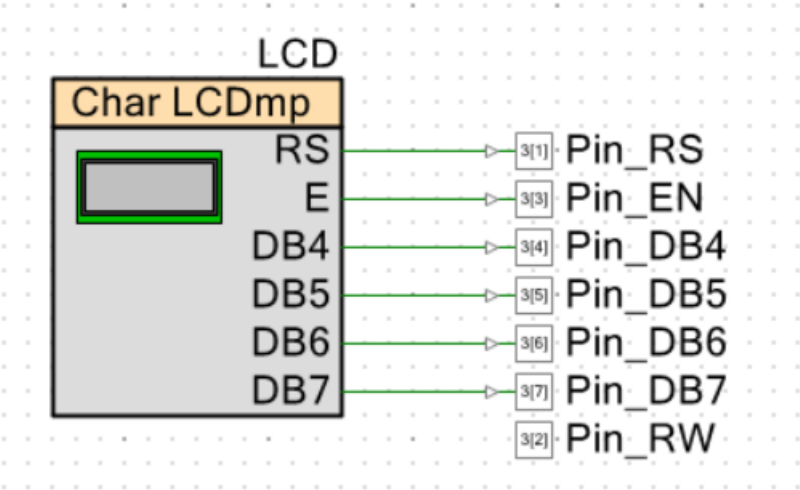

Nombre
Fecha de modificación
Tipo
Tamaño
CharLCDmp_Demo.cydsn
01/11/2020 12:26 p. m.
Carpeta de archivos
CharLCDmpLib.cylib
01/11/2020 12:26 p. m.
Carpeta de archivos
Fecha de creación: 01/11/2020 12:26 p. m.
Tamaño: 1.32 MB
Carpetas: CharLCDmp_v1_00, CharLCDmp_v1_1, External_LCD_v1_00
Archivos: CharLCDmpLib.cyprj, CharLCDmpLib.cyprj.meh


Nombre
Fecha de modificación
Tipo
Tamaño
CharLCDmp_v1_00
01/11/2020 12:26 p. m.
Carpeta de archivos
CharLCDmp_v1_1
01/11/2020 12:26 p. m.
Carpeta de archivos
External_LCD_v1_00
01/11/2020 12:26 p. m.
Carpeta de archivos
CharLCDmpLib.cyprj
20/03/2013 08:56 p. m.
PSoC Creator Proj...
29
Tipo: PSoC Creator Project
Tamaño: 28.7 KB
Fecha de modificación: 20/03/2013 08:56 p. m.

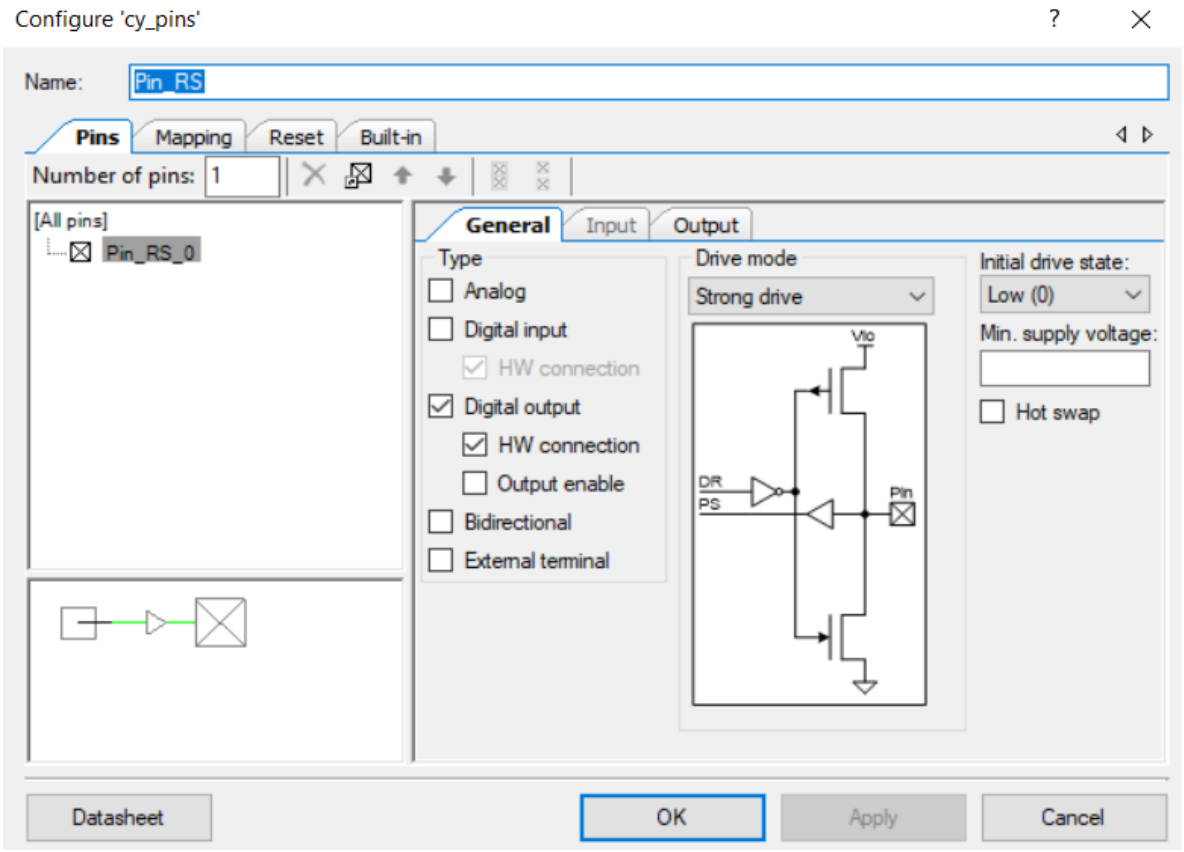

Dependencies
Dependencies
Build Order
Projects
lm35
System Dependencies
Project
Components
Code
CyComponentLibraryUpdates
CyComponentLibrary
CyPrimitives
User Dependencies
Project
Components
Code
CharLCDmpLib
CharLCDmpLib
CyReferenceLibrary
CyAnnotationLibrary
OK
Cancel


Inst_N
Char LCDmp
RS
E
DB4
DB5
DB6
DB7
Component Catalog (204 co...
Search for...
Community
Cypress
Community Component Catalog
Display
Character LCD (multi-Port)

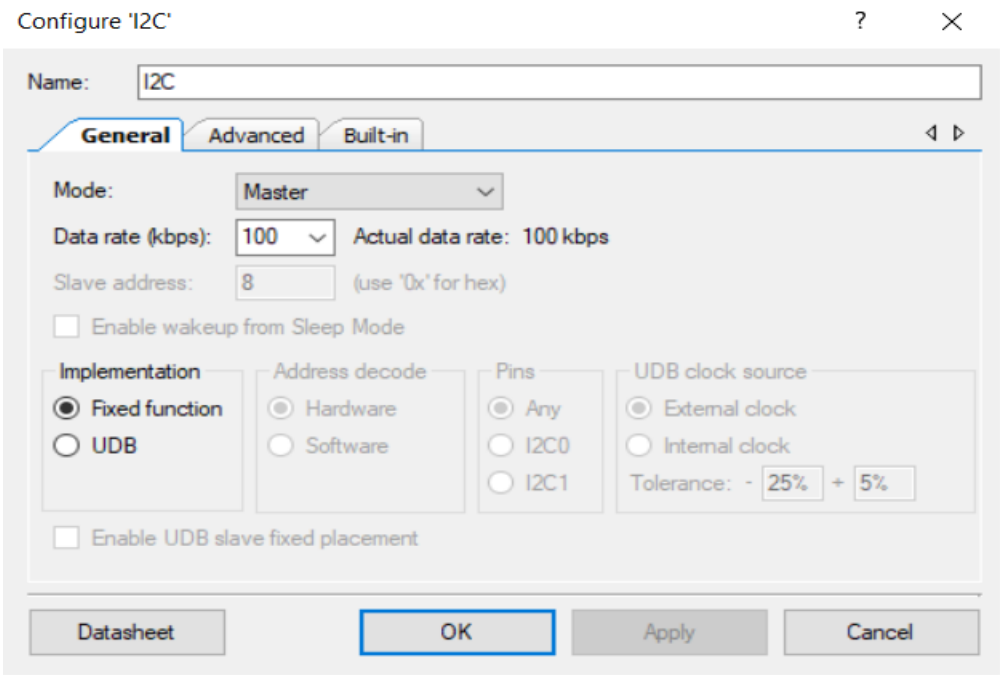
4) Conexions pins LCD

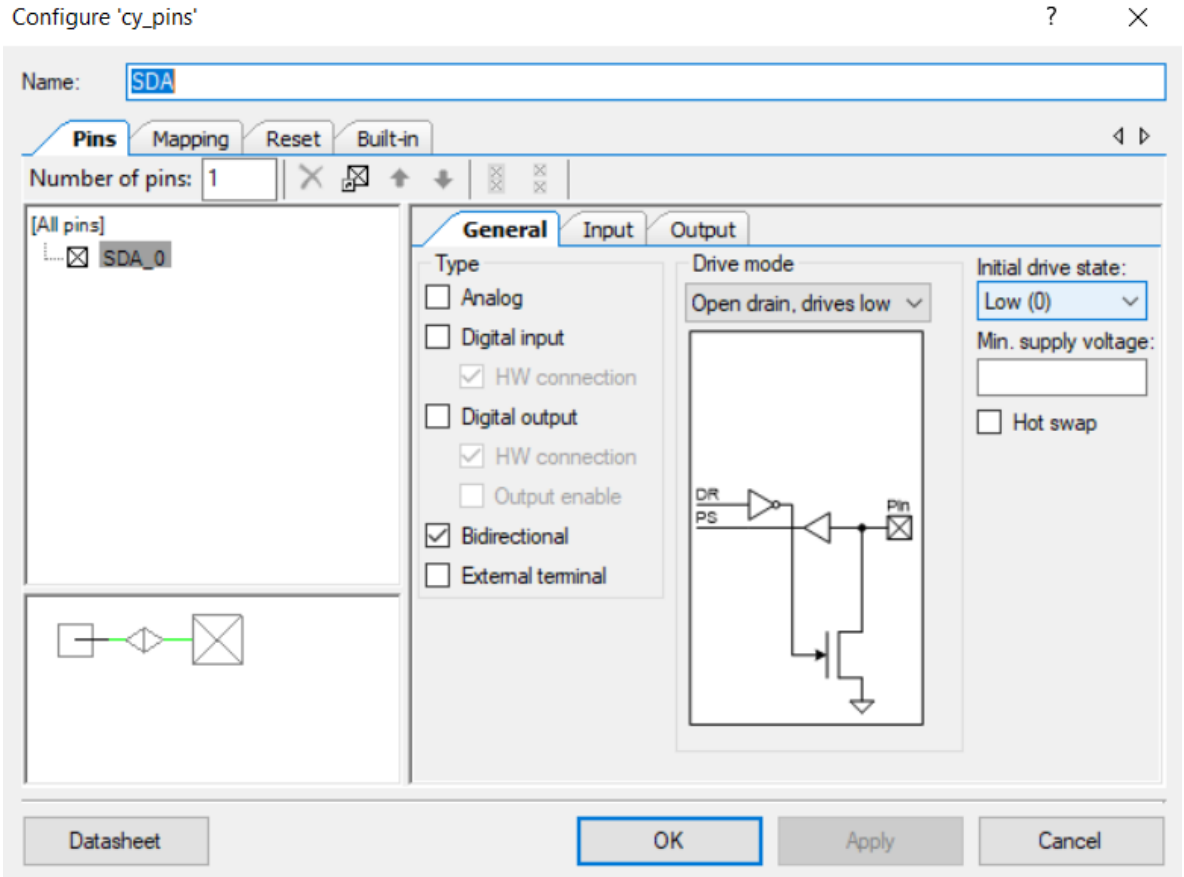


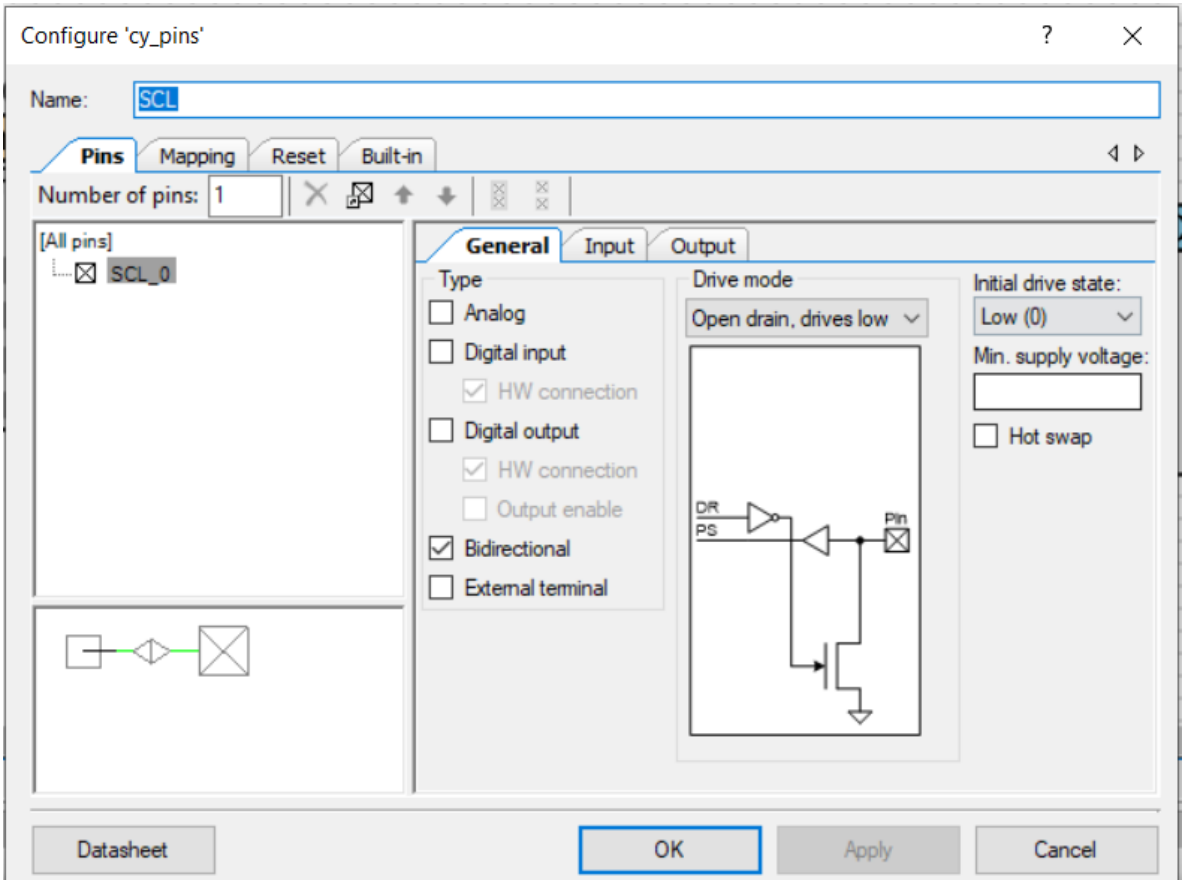
All lcd pines lcd are configured as outputs



5) configure I2C [0] peripheral



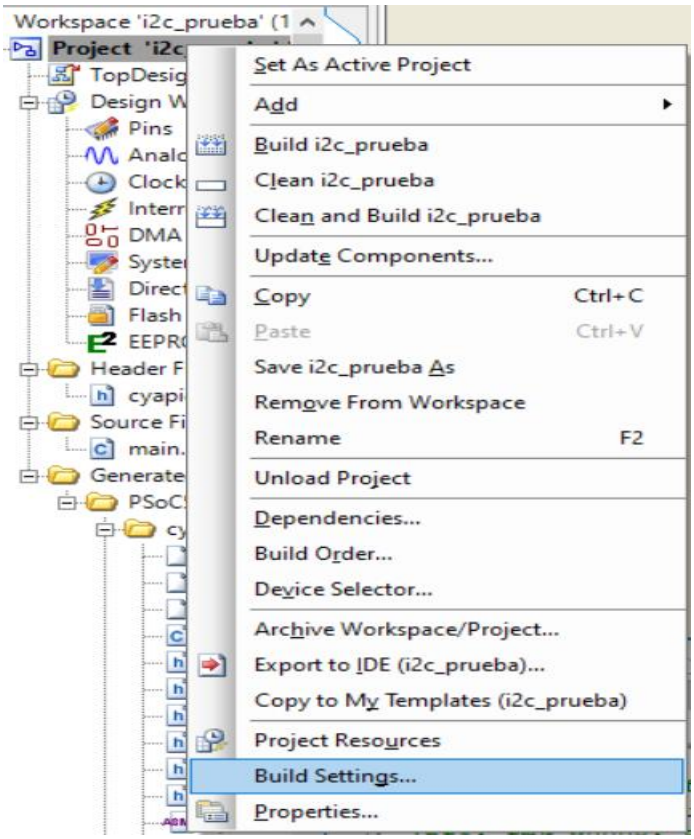




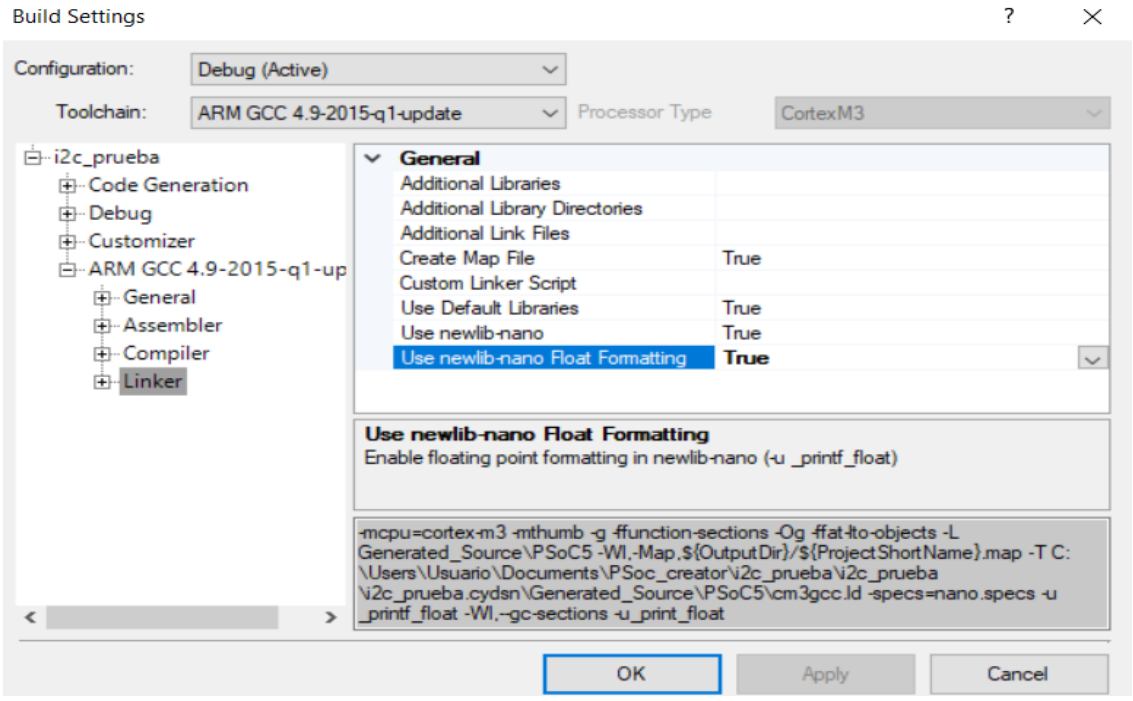
6) Assign the pins

	Name	Port	Pin	Lock
	Pin_DB4	P3[4]	33	☑
	Pin_DB5	P3[5]	34	☑
	Pin_DB6	P3[6]	36	☑
	Pin_DB7	P3[7]	37	☑
	Pin_Dec	P12[3]	47	☑
	Pin_EN	P3[3]	32	☑
	Pin_Inc	P12[2]	46	☑
	Pin_RS	P3[1]	30	☑
	Pin_RW	P3[2]	31	☑
	SCL	P12[4]	3	☑
	SDA	P12[5]	4	☑

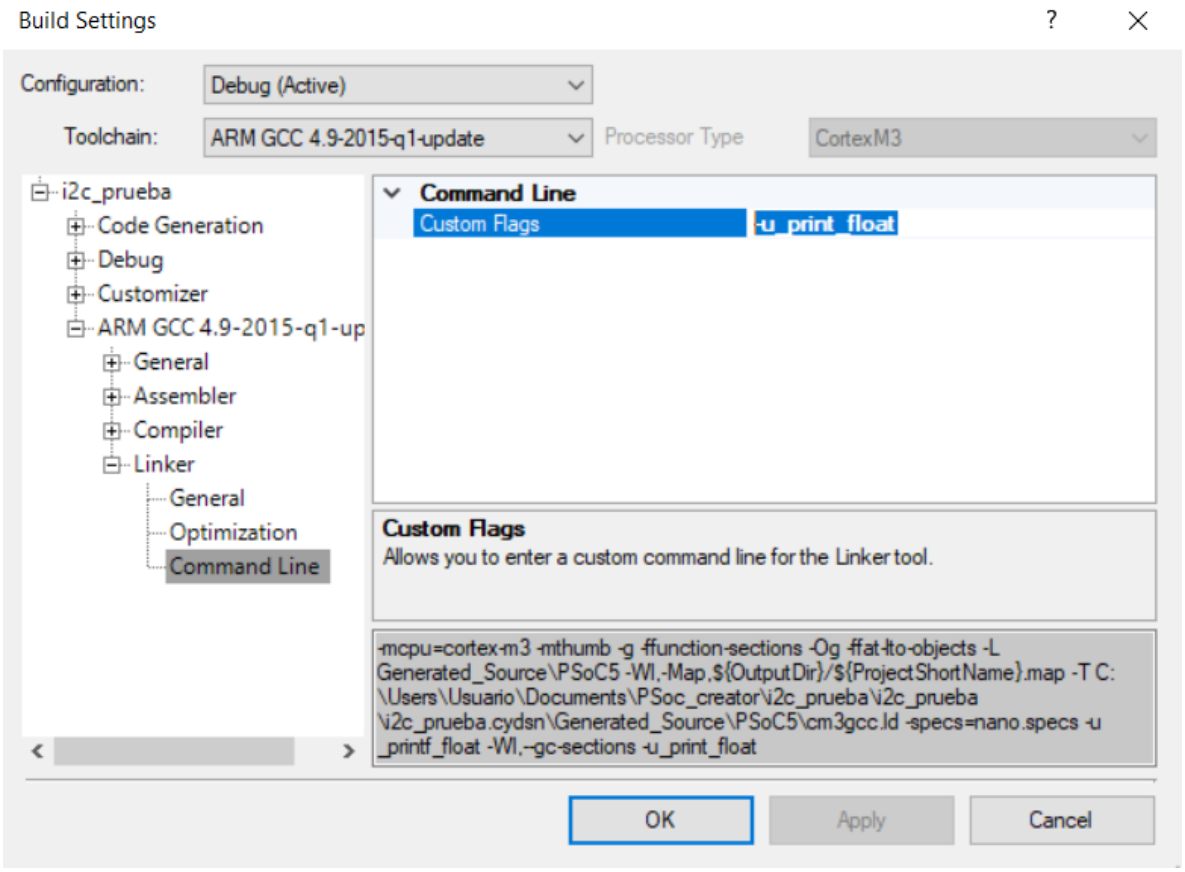
7) Fixe sprintf function



Change False to True

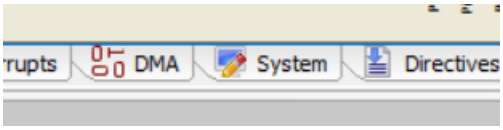


Write “-u_print_float ”

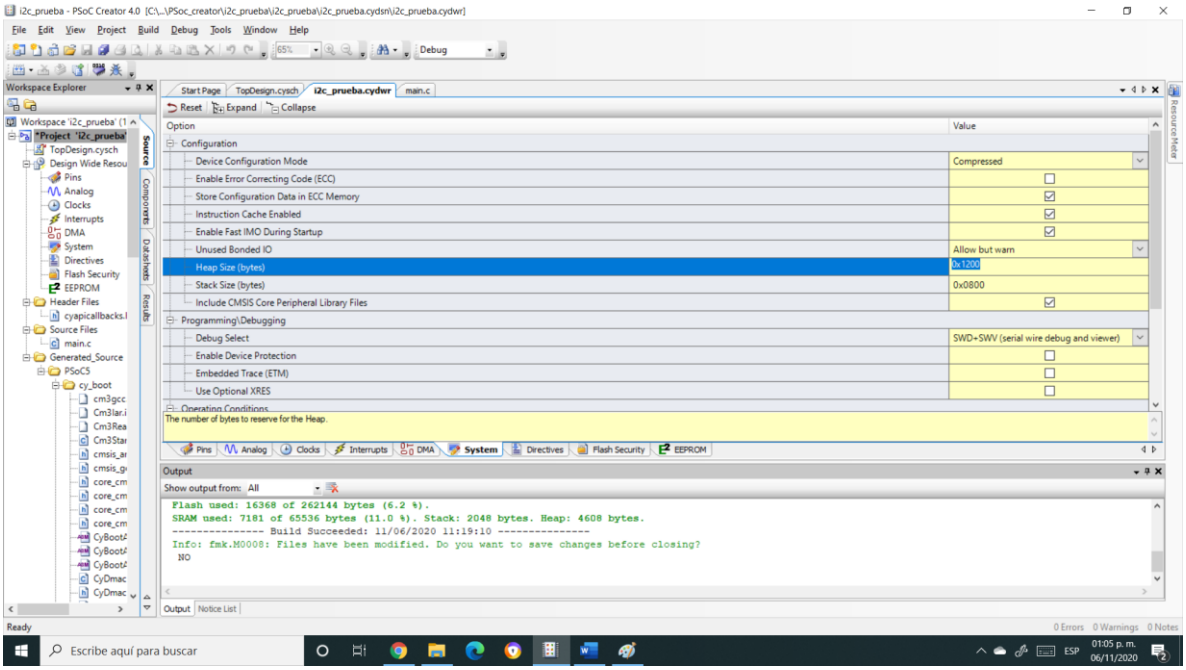


Apply and OK

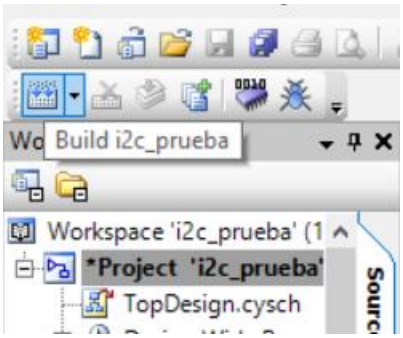
Go to system



Change 0x80 to 0x1200 inside heap size bytes



8) build before writing the code so that the necessary files are added to the project



9) Write the code in the main.c after that check the code and if the code is right then build again and program

```
/****************************************
****************************************
*** AUTHOR: JM PALOMINO                ***
*** VERSION: PSOC CREATOR 4.0.0        ***
*** TITLE: RADIO FM TEA5767            ***
****************************************
****************************************/

#include "project.h"
#include <stdio.h>

#define TEA5767_ADDR 0x60 //address

float FM=105.30; //put your  favorite radio station here
short int std0=1, std1=1, rd0, rd1;

void Frequency_printf(float Frec);
void Frequency_Write(float Freq);

int main(void)
{
    CyGlobalIntEnable; /* Enable global interrupts. */

    /* Place your initialization/startup code here (e.g. MyInst_Start())
*/
    I2C_Start();
    LCD_Start();
    Pin_RW_Write(0);
    LCD_Position(0,4);
    LCD_PrintString("RADIO_FM");
    CyDelay(100);
    Frequency_Write(FM);
    Frequency_printf(FM);

    for(;;)
    {
        /* Place your application code here. */
        rd0=Pin_Inc_Read();
        rd1=Pin_Dec_Read();

        if(rd0==0)  {
        CyDelay(10);
        if(rd0==0) std0=0, CyDelay(10);
       }
       if((rd0==1)&&(std0==0)){
        FM=FM+0.10;
        if(FM>108.00)FM=88.00;
        Frequency_Write(FM);
        Frequency_printf(FM);
        std0=1;
```

```
        }

         if(rd1==0)  {
         CyDelay(10);
         if(rd1==0) std1=0, CyDelay(10);
        }
        if((rd1==1)&&(std1==0)){
         FM=FM-0.10;
         if(FM<88.00)FM=108.00;
         Frequency_Write(FM);
         Frequency_printf(FM);
         std1=1;
        }

    }
}
void Frequency_printf(float Frec){

char strg[6];
sprintf(strg,"%.1f",Frec);
LCD_Position(1,4);
LCD_PrintString(strg);
LCD_PrintString(" MHz ");
}

void Frequency_Write(float Freq){
unsigned int Freq_FM = 4 * (Freq * 1000000 + 225000) / 32768;
      uint8_t data_arr[5];
            data_arr[0] = Freq_FM >> 8;
            data_arr[1] = Freq_FM & 0XFF;
            data_arr[2] = 0xB0;
            data_arr[3] = 0x10;
            data_arr[4] = 0x00;
    I2C_MasterSendStart(TEA5767_ADDR, 0);
    I2C_MasterWriteByte(data_arr[0]);
    I2C_MasterWriteByte(data_arr[1]);
    I2C_MasterWriteByte(data_arr[2]);
    I2C_MasterWriteByte(data_arr[3]);
    I2C_MasterWriteByte(data_arr[4]);
    I2C_MasterSendStop();
     CyDelay(10);
 return;
}

/* [] END OF FILE */ //more information in the datasheet(TEA5767)
```